

classification of grasses; forage plants; cultivated pastures; meadow plants; hay and green feed; lawns; grasses used for miscellaneous purposes; weeds; grass crop areas. The second part comprises fifteen chapters, the first two treating of the morphology of the vegetative and floral organs. There are also interesting chapters on ecology and taxonomy or classification. The next ten chapters take up the grass tribes, a chapter to each, while the concluding chapter is on nomenclature. A large amount of information in reference to hay and pasture grasses is brought together in a condensed form, making it readily available. The chapter on lawns gives the essentials in the preparation of the soil for a good lawn, and the best grasses to be used in different regions. It should prove very helpful.

Grass organs are clearly described, a great help to those uninformed on technical terms often found in works on grasses. The chapter on ecology is full of interesting information on seed dispersal, plant societies, habitats, and geographic distribution. The second part also includes keys to the tribes and genera concerned in the work. The whole is illustrated with sixty-three figures, adding much to its value.

In the field it is intended to cover it meets a decided want, and should be fully appreciated by those interested.

GEORGE V. NASH

**Murrill's Northern Polypores\***

This is the first of a series of four manuals on the polypores of North America. The present volume covers the species occurring in eastern Canada and the northern United States south to the southern boundaries of Virginia, Kentucky, Missouri and Kansas and west to the western boundaries of Kansas, Nebraska and the Dakotas.

\* The volume contains complete keys and descriptions of all the species known in this region, with index to the genera with species and also an alphabetical index to the species. The general style of the book is that of North American Flora, but in order to make the work more condensed all synonyms have been eliminated.

\* Murrill, Wm. A. Northern Polypores. Pp. i-iv + 64. Privately published. December, 1914. Price \$1.00, postpaid.

The chief object of the work is to serve as a field manual. This and the succeeding volumes will fill a long felt need of some comprehensive work on the more conspicuous fungi of North America.

F. J. SEAVER

*Murrill's American Boletes\**

This manual of the Boletaceae contains complete keys to the genera and species and full descriptions of all of the species known in America. The boletes, which are pore-fungi, differ from the polypores chiefly in their fleshy consistency and terrestrial habits. The group contains many of our best edible fungi. On account of their fleshy consistency the plants are altered greatly in drying and it is necessary to keep extensive field notes as an aid in making determinations. A blank form is inserted in the book to serve as a guide to collectors in making field notes.

The general style and purpose of the book is the same as that of "Northern Polypores," which was published at the same time and by the same author.

F. J. SEAVER

MOORE, B. THE PRESENCE OF INORGANIC IRON COMPOUNDS IN THE CHLOROPLASTS OF THE GREEN CELLS OF PLANTS, CONSIDERED IN RELATIONSHIP TO NATURAL PHOTO-SYNTHESIS AND THE ORIGIN OF LIFE, Proc. Roy. Soc. B. 87: 556-570, 1914, reports obtaining striking, clean cut reactions (by means of Macallum's haematoxylin method) indicating the localization of iron in the stroma of chloroplasts.

Somewhat earlier Moore and Webster (Proc. Roy. Soc. B. 87: 163-176) announced that they obtained a synthesis of formaldehyde from carbon dioxide and water in the presence of ferric hydroxide and light. Moore concludes that iron salts in the stroma of chloroplasts are primary factors in the initial stages of synthesizing carbon dioxide and water, and also in the production of chlorophyll; the latter in association with the iron-bearing portions of the colorless stroma forming the complete photo-

\* Murrill, Wm. A. American Boletes. Pp. i-v + 1-40. Privately published. December, 1914. Price \$1.00, postpaid.